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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,750	04/02/2004	Ricky Dean Madson	16571-US	1145
30689	7590	09/12/2007	EXAMINER	
DEERE & COMPANY ONE JOHN DEERE PLACE MOLINE, IL 61265			VANAMAN, FRANK BENNETT	
		ART UNIT	PAPER NUMBER	
		3618		
		MAIL DATE		DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/816,750	MADSON ET AL.	
	Examiner	Art Unit	
	Frank Vanaman	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 August 2007.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) 39 and 46-65 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-14, 16, 17, 20-24, 26-36, 38, 40, 43-45 is/are rejected.
- 7) Claim(s) 15,18,19,25,37,41 and 42 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 16, 2007 has been entered.

Status of Claims

2. Claims 1-65 remain pending, claims 39 and 46-65 are withdrawn from consideration.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-6, 20, 21, 27, 32, 33, 44 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Emond et al. (US 5,590,624). Emond et al. teach a vehicle cooling package including a heat exchanger assembly (52, 54) fluidly connected with an engine portion of the vehicle in order to operate, a unitary fan shroud (56) mounted adjacent the heat exchanger and connected thereto (note bracket, figure 2); the shroud having a diverting surface (62), a diverter plate (46) with a central aperture (88; additionally 55) mounted adjacent the fan shroud and spaced therefrom, having at least one flange (bottom side of 90) extending in a perpendicular direction to the general plane of the forward extent of the diverter, a fan (48, col. 3, lines 51-55) mounted for rotation between the shroud and plate; a vehicle hood (22, 24) enclosing the assembly; having air discharge openings including diffuser screen or grid portions (32) extending along at least the top, and further including sides extending closely proximate a lower end of the space between the plate and shroud (note figure 1), the lower section of the grid portions (32) positioned closely proximate a front hood support (e.g., 34) to the breadth claimed; the fan shroud diverting surface having an angle (compare 62 and flow

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indicating angle) which closely matches the discharge direction of the fan element (48, note that Emond et al. anticipate the use of a fan which explicitly introduces a radial component of flow at col. 3, lines 51-55), the diverter plate comprising an angle 'closely matching' -- to the breadth this limitation is actually claimed, to the discharge of the fan (48); the air being discharged at a comparatively high velocity compared with a discharge arrangement not including the fan portions, shroud and diverter plate; the shroud having an aperture defined by a circumferential wall (58) which extends out from a main portion (60), the diverting surface (62) extending in an opposing direction therefrom; the components being mounted to a vehicle frame (not referenced, shown proximate numerals 58, 60, 62, figure 2).

5. Claims 27, 29 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Albright et al. (US 2003/0136544). Albright et al. teach a fan shroud for a radial fan (64) with radial blades (64b) and understood to inherently include a radial discharge angle, in view of the fan being explicitly taught as being a radial fan (paragraph 0030); the shroud having a main body portion (66, 69, distal end 69A), with a fan aperture therein (62), which is defined by a circumferential wall (68A) extending outwardly from the shroud body, further including a diverting surface extending from the circumferential wall (e.g., proximate end 68A at the opposing end of the body from distal end 69A) which extends in a radial direction with respect to a fan axis (e.g., 70a), at a radial angle compared to the fan axis (note figure 9), having a section (e.g., between 68A and 69) corresponding to the fan discharge; and further including at least one mounting flange (69B - note col. 3, lines 66, 67), the corners of the shroud including recess portions (e.g., proximate the arrow end of the lead line for element 50, figure 3; additionally note figure 7) which accommodate plumbing portions (inlet and outlet lines of radiator 48).

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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7. Claims 8, 10, 14, 16, 17, 23, 24, 36, 38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emond et al. (Cited above).

Claim 8: The reference to Emond et al. is discussed above and fails to teach the shroud as being molded from a thermoplastic or thermoset material. The molding of vehicle ducts and diverters from thermoplastic or thermoset materials is old and well known, for the purpose of providing inexpensive molded objects of comparatively high strength and low weight, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the shroud from a molded thermoplastic or thermoset for the purpose of inexpensively providing the shroud without substantially increasing the weight of the vehicle.

Claims 10, 17, 40: The reference to Emond et al. is discussed above and fails to teach the portions of the shroud and/or diverter plate having stiffening ribs. Stiffening ribs on structural items are notoriously old and well known, being provided for the advantage of increasing stiffness while not appreciably increasing weight, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide stiffening ribs on the shroud portion and/or plate portion, for the purpose of rendering either or both elements more rigid without substantially increasing their respective weights.

Claims 14, 36: While teaching at least one perpendicular flange, the reference to Emond et al. fails to teach a pair thereof. The duplication of already-taught parts is old and well known, for the purpose of amplifying or enhancing the effect of the existing part, and it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least a pair of perpendicular flanges instead of the single shown flange of Emond et al. for the purpose of providing greater surface area for mounting, or for rigidifying the edges of the plate.

Claims 16, 38: The reference to Emond et al. fails to specifically teach plumbing recesses in the plate, however in view of at least one plumbing element traversing the plate (note figure 2, upper portion thereof), it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a recess or aperture in the plate so as to allow the plumbing element to pass through the plate.

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Claim 23: The reference to Emond et al. fails to teach the specific angle of the fan discharge. Inasmuch as Emond et al. do teach that the fan has a discharge with both axial and radial components, and inasmuch as the out flow is intended specifically to be directed towards surfaces generally perpendicular to the axial direction, it would have been obvious to one of ordinary skill in the art at the time of the invention to adjust an angle of discharge of the fan to be at an angle of approximately 60 degrees to 80 degrees for the purpose of directing a substantial portion of the air flow towards the already-taught outputs.

Claim 24: The reference to Emond et al. fails to teach the diverting surface of the shroud and diverter plate as extending completely to the hood portion. In that Emond et al. are specifically focused on the control of flow through the heat exchangers and specific draw of flow through the engine (e.g., through 55), it would have been obvious to one of ordinary skill in the art at the time of the invention to prevent flow through portions of the various compartments except where taught (i.e., through the fan shroud, through the apertures 55) for the purpose of precisely controlling the flow through the assembly, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to extend the non-flow-inducing portions of the shroud and diverter plates to the hood structure, thus promoting flow only through the taught apertures, allowing precise control over the flow.

8. Claims 7, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emond et al. in view of Hitt et al. (US 6,622,783). The reference to Emond et al. fails to teach the provision of the shroud as mountable to the heat exchanger frame, wherein the heat exchanger extends to be partially disposed within the shroud, the shroud including one or more mounting flanges which mate with portions of the heat exchanger frame, the shroud including plumbing recesses. Hitt et al. teach a fan shroud (12) for use in a vehicle cooling system, the shroud including a plurality of flange portions (38, 44) which mate with a heat exchanger (13) and its frame (20, 50), with at least a portion of the heat exchanger being disposed within the shroud (figures 4, 5); the shroud including plumbing recesses (between 44 and 44, for example). It would have

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been obvious to one of ordinary skill in the art at the time of the invention to provide the shroud of the vehicle system of Emond et al. in the format taught by Hitt et al. to include the mating flanges, plumbing recesses and a portion of the heat exchanger disposed within the shroud, for the purpose of providing a secure connection between heat exchanger and shroud, and to ensure efficient air flow through the exchanger.

9. Claims 12, 13, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emond et al. in view of Haupt (US 4,018,297). The reference to Emond et al. fails to teach the diverter plate as including a main section and removable section, wherein the sections are provided with mating flanges to facilitate attachment to one another. Haupt teaches a shroud/diverter element (6 in general) for use in an automotive cooling arrangement; the element provided with a plurality of sections (10, 12, 15, 16), at least one (10) being removable from the remaining portions (figure 2), the sections including mating flanges (22, 23, figure 4, for example) allowing fasteners (13, 18) to be used to connect the sections together. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the diverter taught by Emond et al. from a plurality of sections as taught by the diverter/shroud of Haupt, for the purpose of allowing the element to be installed/removed without disassembly of the remaining portions of the heat exchange assembly, and for allowing easy access to working elements contained behind it.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Emond et al. in view of Gielda et al. (US 5,626,185). The reference to Emond et al. fails to teach the provision of wheel well louver discharge vents aligned with the region between the shroud and diverter. Gielda et al. teach a vehicle airflow arrangement including a wheel well louver (37) for allowing heated air to be removed from a heat-exchange and engine compartment area. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the assembly taught by Emond et al. with a wheel well louver arrangement connecting the region between the shroud and diverter to a wheel well, for the purpose of exhausting the heated air and preventing recirculation of

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already-heated air (specifically taught by Gielda), allowing the vehicle to operate more efficiently.

11. Claims 26 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emond et al. in view of Yamashita et al. (US 5,689,953). The reference to Emond et al. fails to teach the provision of a port in the diverter for directing fan discharge air to a selected component. Yamashita et al. teach a diverter (e.g., 20) for a fan system in a vehicle heat exchanging arrangement, wherein a flow port (28) is provided in addition to a means of removing the bulk of the heated air from the vehicle compartment (e.g., 20b), the flow port being arranged to direct a portion of the air to an pre-selected component (16) for cooling thereof. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least one additional port as taught by Yamashita et al. in the diverter taught by Emond et al., directed to a pre-selected component, for the purpose of providing a smaller quantity of ventilation air to cool at least a portion of the pre-selected component.

12. Claims 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albright et al.

Claim 28: The reference to Albright et al. is discussed above and fails to teach the shroud as being molded from a thermoplastic or thermoset material. The molding of vehicle ducts and diverters from thermoplastic or thermoset materials is old and well known, for the purpose of providing inexpensive molded objects of comparatively high strength and low weight, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the shroud from a molded thermoplastic or thermoset for the purpose of inexpensively providing the shroud without substantially increasing the weight of the vehicle.

Claim 30: The reference to Albright et al. is discussed above and fails to teach the portions of the shroud having stiffening ribs. Stiffening ribs on structural items are notoriously old and well known, being provided for the advantage of increasing stiffness while not appreciably increasing weight, and as such, it would have been obvious to one

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of ordinary skill in the art at the time of the invention to provide stiffening ribs on the shroud portion, for the purpose of rendering the shroud more rigid without substantially increasing its weight.

Allowable Subject Matter

13. Claims 15, 18, 19, 25, 37, 41 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Comments

14. Applicant's comments have been carefully considered. Applicant has asserted that Emond et al. fail to teach the use of a fan having a generally radial discharge. Applicant has cited Emond at col. 3, lines 30-67, which includes lines 51-55 (with which applicant would be understood to be quite familiar, having cited the text in which this passage lies), which explicitly describe "...fan 48 is contemplated as being a mixed flow fan in lieu of the aforementioned axial flow fan and radial flow diffuser. In such a mixed flow configuration, the blades of fan 48 are configured to impart both axial and radial velocity components to the flow of the cooling air." As understood, this constitutes an explicit teaching that Emond et al. anticipate the use of a fan which, on its own, includes a natural radial discharge component. As regards applicant's use of "generally" and absent further narrowing limitations, a fan delivering a radial flow component delivers 'generally radial' flow to the breadth that limitation is actually presented, as regards the limitation that the angle of the diverter "closely match" the flow, applicant provides no specificity as to the precise range associated with "closely", and in view of the flow lines shown in Emond et al., and the breadth of the claim recitation, the diverter plate angle "closely matches" the radial component of flow through the fan. As regards the reference to Albright et al., the diverting surface is arranged at an angle closely orthogonal to the axis of the fan, and would be understood to extend in a generally radial direction with respect thereto, and as such is positioned at a generally radial angle.

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Many of the difficulties encountered in the prosecution of patent applications may be alleviated if each applicant includes, at the soonest possible time, claims varying from the broadest to which he or she believes he or she is entitled to the most detailed that he or she is willing to accept.

Applicant has, again, not separately argued any perceived errors in the rejections under 35 USC §103, and as such the examiner understands that applicant finds no asserted error in the rejections, in that the response is understood to have been presented in a fully responsive manner as required by 37 CFR 1.111.

The examiner notes for a second time that certain claims have been of record as being allowable over the prior art, however applicant has failed to make any discernable effort to place these claims in condition for allowance, despite the response filed being understood to comprise a fully responsive reply as defined in 37 CFR 1.111.

Conclusion

15. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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16. Any inquiry specifically concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 571-272-6701.

Any inquiries of a general nature or relating to the status of this application may be made through either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A response to this action should be mailed to:

Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450,

Or faxed to:

PTO Central Fax: 571-273-8300

F. VANAMAN
Primary Examiner
Art Unit 3618



9/6/07